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## CENSUS STATISTICS ON EMPLOYMENT OF CHILDREN IN MANUFACTURES

The census reports on "Manufactures" for 1900 and 1905 are seriously inaccurate in their reproduction of statistics of the number of children employed in manufacturing in 1880 and 1890. This inaccuracy is due to a change which has taken place in the census definition of children, together with a disregard of this change in the later reports. The following tabular statement shows at a glance the meaning of the term "children" and also of the terms "men" and "women," as defined by the census returns on "Manufactures," and also on "Occupations."

### AGE DIVIDING CHILDREN FROM ADULTS IN THE CLAS- SIFICATIONS ADOPTED BY THE U. S. CENSUS FROM 1870 TO 1905

THE AGE ENTERED IN THE TABLE IS IN EACH CASE THE LOWEST AGE  
OF ADULTS

CENSUS YEAR	CENSUS OF MANUFACTURES		CENSUS OF OCCUPATIONS (POPULATION)	
	Male	Female	Male	Female
1870.....	16	15	16	16
1880.....	16	15	16	16
1890.....	16	15	15	15
1900.....	16	16	16	16
1905.....	16	16		

Those below the age indicated in the table were classed as "children." The census of "Manufactures" does not divide children into boys and girls. The change in the definition of children which, as the table indicates, took place in the census of "Manufactures" in 1900 is practically ignored in the 1900 and 1905 reports. Throughout the 1905 report wage-earners are classified as "men over 16," "women over 16," and "children under 16." The returns for 1880 and 1890 are entered under these captions, notwithstanding the fact that for these two years the number of women shown is the number of females 15 years of age and over,

and the children include the males under 16 and the females under 15. The returns for 1880 and 1890 are placed in juxtaposition with those for 1900 and 1905 in many tables for the obvious purpose of comparison, and comparisons between the figures at the various periods and the percentages based upon them are made in the text. But neither in this text nor in footnotes appended to it is attention called to the fact that the numbers and the percentages based upon them in these tables are not strictly comparable. That such is the case, as indicated by the above tabular statement, may be inferred from an examination of the tables on pp. lxxxiii and lxix of Part I of the 1905 report on "Manufactures," and may be verified by a comparison of tables in the 1905 census reports with those in the 1870, 1880, and 1890 reports. Except as above indicated, however, careful search fails to discover that the matter is mentioned in the 1905 reports.

An illustration of the inaccuracy to which these tables may lead, even in the case of a careful and ingenious writer, is afforded by Dr. Edith Abbott's book on *Women in Industry*, which has recently been published. Dr. Abbott discusses the incomparability of the various census reports as to the number of female wage-earners engaged in manufacturing industries.<sup>1</sup> She observes that the census of "Manufactures" reported in 1850 and 1860 the number of males and females employed who were 10 years of age and over; in 1870, 1880, and 1890 the number of men 16 and over, the number of women 15 and over, and the number of children of both sexes combined under those ages; and in 1900 the men 16 years of age and over, the women 16 years and over, and the children under 16 years without distinction as to sex. Miss Abbott desires to make the returns since 1870 comparable with those before that date. To do this it is necessary, except in the cases of a few industries, to divide the children reported at each census, beginning with that of 1870, into boys and girls. With this purpose the author calls to her aid the results shown by the "Occupations" returns, a part of the population census. These returns, for

<sup>1</sup> See Edith Abbott, *Women in Industry*, 352.

reasons which Miss Abbott explains, show fewer wage-earners than does the census of "Manufactures." She uses the results merely to determine the ratio between boys and girls at each census year, and then divides the children reported by the census of "Manufactures" at each census in the ratio thus determined.

Strangely enough, when she comes to this computation Miss Abbott apparently forgets what she has already discussed—the fact that "children" does not signify the same set of individuals in the "Manufactures" census throughout the period considered. Nor does she mention anywhere in her discussion that in the reports on "occupations" in the population census the meaning of "children" varied during the period under discussion; and that at no census prior to that of 1900 did the term signify the same class of individuals in the two branches of the census—that of manufactures and that of population.

The table presented above makes it clear that Miss Abbott's method of estimating the number of children of each sex employed in 1900 was a proper one. In attempting to use the method in 1890, however, she has applied the ratio between males and females under 15 years of age as shown by the "Occupations" returns to a total embracing males under 16 and females under 15. In 1870 and 1880 she has divided the same group—males under 16 and females under 15—in the ratio found to exist between boys under 16 and girls under 16. Manifestly her results are inaccurate except in 1900.

Fortunately, correction of Miss Abbott's figures leaves unaffected her principal proposition, viz., that the percentage of females engaged in the cotton industry has constantly diminished. The extent of her error in 1880 is ascertainable from the census reports. The census of "Manufactures" for that year shows the number of females engaged in the cotton industry and indicates that Miss Abbott's estimate is 1,827 too high. Data are not available for fixing the extent of her error in 1890 but a method of testing it is afforded by the census returns of 1900. The reports of the census of "Occupations" for that year show that in the cotton industry, with which Miss Abbott's tables are

concerned, girls 15 years old constituted 17.5 per cent. of all children under 16 years of age. If the same proportion were girls of this age in 1890, then the figures for that year which appear in the 1905 census reports under the heading "children under 16," but which are in fact the number of males under 16 and females under 15, represent only 82.5 per cent. of all children under 16 years of age. The children under 16, then, numbered 28,402. The "Occupations" census for 1900 also shows that 31.8 per cent. of all children under 16 were 15 years old. Deducting this percentage from the estimated number under 16 in 1890 the remainder is 19,370, who were children under 15 years of age. If these be divided according to the method used by Miss Abbott, and the girls be added to the women of 15 years and over, the result obtained is 2,013 less than Miss Abbott's result.

The method is roundabout and not entirely satisfactory, owing to the assumption that the same proportion of children were 15 years old in 1890 as in 1900. In the remaining computations in this discussion an estimate is made of the number of children under 16 years of age engaged in certain industries in 1880 and 1890, but not of those under 15 also, as in the above calculation. This lessens the probability of error.

Something of the extent of the inaccuracy in the census reports has now become evident. In the 1900 and 1905 reports the number of children under 16 years in the cotton industry in 1890 is given as 23,432. The above estimate places the number at 28,402. A similar calculation for 1880 adds over 6,000 to the number shown in the 1905 census report, making 34,327 instead of 28,320. The error in the census reports is of course greatest in those industries which have the highest percentage of females 15 years old. In the silk industry, according to the "Occupations" census of 1900, 31 per cent. of all children are girls 15 years old. If the same ratio prevailed in 1890, the number of children under 16 engaged in the silk industry in that year was 4,154 instead of 2,866, as stated in the 1905 census reports. In other words, the census figures should be increased 45 per cent., and children under 16 constituted 8.3 per cent of

all employees in the silk industry in that year instead of 5.8 per cent. In 1880 the error is still more striking. Instead of 5,566 children under 16 there were 8,055, according to this estimate, engaged in the silk industry, and they constituted over 25 per cent. of all workers instead of 17.8 per cent., as stated in the 1905 report. Thus it appears that the amount of child labor in this industry has diminished with much greater rapidity than is indicated by the 1905 census reports. The same thing is true, in varying degrees, of every industry employing girls 15 years of age.

In all manufacturing industries combined, according to tables in the 1900 and 1905 census reports on "Manufactures," the number of "children under 16" in 1890 was 120,885 and in 1880 was 181,921. To make these figures correct it is necessary to add the number of girls 15 years old. According to the "Occupations" census of 1900 such girls were 19.8 per cent. of all children engaged in manufacturing industries, and if the same ratio prevailed in 1890 the total number of children under 16 so engaged was in that year over 150,000, and in 1880 about 225,000, or about 25 per cent. greater than the last census report shows for those years. The number of women 16 and over was of course correspondingly smaller than the same reports indicate.

The reader may ascertain something of the extent to which this error invalidates tables in the last two census reports by referring to the extended table at p. 3 of Part I of the 1905 report, and the table at p. 3 of Part I of the 1900 report. These tables each purport to be a "Comparative Summary by Specified Industries," and they bring together the census returns of each census beginning with 1880, but with the error already noted. This error of something like 25 per cent. in the number of children is distributed throughout every industry covered in the table, which extends over 15 closely printed pages in one volume and 18 in another. Some industries are affected much more than are others. Where few girls are employed, as in the glass industry, the error is only slight. In the clothing industry, where more than half of all children are girls 15 years old, the

number of children under 16 in 1880 and 1890 was necessarily more than twice the number stated in the table.

In the treatment of specified industries in Parts III and IV of the 1905 census reports and the corresponding volumes for 1900 the inaccuracy resulting from the improper use of the 1880 and 1890 returns is made still more misleading by translation into percentages and presentation in text form. A single illustration will suffice. On p. 237 of Part III of the 1905 report it is stated that the children engaged in the shoe industry increased 85.7 per cent. between 1890 and 1900. This is a gross exaggeration, for if the girls of 15 were included in the 1890 total, much of this apparent increase would disappear. The text writer was evidently not aware that he was dealing with two classifications of children. This is only an illustration of the errors in the text resulting from the improper use of the earlier census returns and merely suggests the extent of error into which any reader of the report might be led. The tables relating to every industry contain the inaccuracy under discussion and thus invalidate both the 1900 and 1905 reports for the purpose of studying the development of industry from the standpoint of the sex and age of individuals engaged in it.

The use of the figures from the earlier censuses under changed headings without warning or explanation in the later reports is the more inexplicable when it is discovered that the slight change resulting from the omission of salaried officials from the later reports is repeatedly and carefully noted. That the returns from the various censuses as to the number of women and children employed are not comparable is to be regretted, but it cannot be remedied. The presentation of these returns in such a way as to deceive the reader who does not trace them to their sources cannot be eliminated from the published census reports, but it is to be hoped that it will not be found in the 1910 report.

FRANK B. SARGENT